

Docket No.: 2461-003

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Albert E. Plomp

Serial No. 10/736,499

Filed: December 17, 2003

For: PACKER CUPS

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: Group Art Unit: 3672
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: Examiner: THOMPSON
:

DECLARATION

Honorable Commissioner of Patents
and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Brian C. Templeton declares and says as follows:

1. I am a professional geophysicist having graduated from the University of Calgary. I am a member of APEGGA, the Association of Professional Engineers, Geologists and Geophysicists of Alberta, Canada.
2. I have reviewed application Serial number 10/736,499, the prior art cited therein, and pending U.S. application Serial number 2003/0024386A1 to Burke, and U.S. Patent number 4,596,395 to Miser. The latter two were cited by the Examiner in the prosecution of the instant application.
3. The Burke application describes a piston seal with a lip and a heel. In the most pertinent embodiment the seal lip has an annular bulge which is constructed of a material more flexible than that forming the heel. The annular bulge is described as sealing against the cylinder wall because the lip is of a diameter larger than the diameter of the cylinder. The patent further describes that the annular bulge is compressible upon insertion into the cylinder. The application further describes that insertion transfers the stress point forward from where the heel abuts the mounting hub to the bulge to reduce wear on the piston seal by substituting wear on the annular bulge for the prior art wear on

the seal heel itself. The patent application also provides that the heel and lip sections are joined by bonding using a bonding agent.

4. A packer cup seal in contrast to a piston seal is intended to releasably seal the annulus between a tubing string and the well casing. As shown for example in application serial number 2003/0098153 packer cups can be used to isolate an area of interest in the casing for pressure testing. Internal pressure within the casing then causes the packer cup to expand and seal the annulus, and when the pressure is released the cup returns to its original shape. It is necessary then that the cup return to its original shape so that the tubing can be removed from the casing. In operation, an initial small amount of pressure will expand the softer lip portion of the cup to seal, and the addition of higher pressure will cause the cup itself to expand. When the cup is in its original shape then it should slide relatively freely from the casing as the tubing section is withdrawn. Under high pressure however there is no sliding movement of the cup against the casing wall.

5. In the Burke application a joint is formed between the lip section and the heel section. In contrast, in the instant application the more flexible and less flexible sections are integral. Failure of the Burke seal would occur at the joint or interface between the lip and heel sections, whereas no such failure would occur with an integral cup.

6. The Miser patent number 4,596,395 has also been considered. This patent describes a cup type seal used on a moving element such as a pump rod or the like. As described in the second paragraph, column 1, such seals are used for example between the pump rod and the barrel of the pump. By reciprocating, the seal will frictionally engage the inner surface of the barrel causing the seal to wear. There is no teaching in this patent for a stationary seal such as that provided by the packer cup of this invention. In addition, the Miser patent at column 2, second paragraph, describes a non-flexible, non-resilient material forming a first annular section, and a second annular section defining a sealing surface with the two sections being joined preferably by bonding. There is no teaching for an integral seal. As in the case of the Burke seal, the junction between the first and second annular sections, is where failure would occur. Also, the first annular section 16 is described as constructed from a "non-flexible, generally non-resilient material" whereas the corresponding portion of the packer cup of the instant invention is both flexible and resilient. The heel portion is intended to flex under high

pressure whereas the corresponding lip portion flexes under lower pressure. These features are inherent in polyurethane of the hardness described in the application, and claimed in Claims 7 and 8.

7. In my opinion one of ordinary skill in the art would not look to piston seal technology or a seal to be carried by a moving element such as a pump rod in order to construct a packer cup.

The undersigned being hereby warned that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application or any resulting registration; and that all statements made of his own knowledge are true and all statements made on information and belief are believed to be true.





Name

P. GEOPH.

Title

October 5, 2006

Date